ABSTRACT

THE EFFECT OF PYRIDINE AND TRIETHYLAMINE CATALYSTS ON SYNTHESIS 4-BENZOYLOXYCINNAMIC ACID USING MICROWAVE IRRADIATION

Ilham Bagus Sagitaras

4-benzoyloxycinnamic acid was synthesized by reacting coumaric acid, benzoyl chloride, and pyridine as catalysts. This synthesis was carried through the mechanism of nucleophilic acyl substitution using microwave irradiation. The optimum percentage in the synthesis of 4-benzoyloxycinnamic acid with pyridine as catalysts was observed at 270 Watt and 1 minutes (2 times of 30 second).

In order to study the effect of organic base catalysts to the percentage of coumaric acid esterification, pyridine and trimethylamine were used as catalyst in this research. The optimum condition that was observed was applied to the synthesis with triethylamine as catalyst. Synthesis 4-benzoyloxycinnamic acid with trimethylamine as catalyst has greater percentage than with pyridine as catalyst.

The characterization of 4-benzoyloxycinnamic acid was performed using melting point test, UV-Vis spectrophotometry, FT-IR spectrophotometry, and ^{1}H–NMR spectrometry. The synthesis percentage of 4-benzoyloxycinnamic acid using pyridine as catalyst were found to be

61,4% ± 1,8 and the synthesis percentage using trimethylamine as catalysts were found to be 80,2% ± 0,7. Both of them show the optimum reaction at 270 Watt and 1 minutes (2 times of 30 second).

Keyword : 4-benzoyloxycinnamic acid, nucleophilic acyl substitution, microwave irradiation, pyridine, triethylamine.